

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

**MAILED**

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

**JUN 23 1999**

**PAT.&T.M. OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Ex parte RICHARD M. WEBER  
and  
KERRIN A. RUMMEL

Appeal No. 98-1605  
Application 08/675,280<sup>1</sup>

ON BRIEF

Before CALVERT, COHEN and GONZALES, Administrative Patent Judges.  
COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1,  
2, 5 through 8, 11, 12, and 17 through 24. These claims consti-  
tute all of the claims remaining in the application. However,

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<sup>1</sup> Application for patent filed July 1, 1996. According  
to appellants, the application is a division of Application  
08/406,226 filed March 17, 1995, abandoned.

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on pages 1 and 2 of the brief (Paper No. 15), appellants expressly set forth that "the appeal as to claims 5, 6, 11, 12, 23, and 24 is withdrawn." Accordingly, we only have before us claims 1, 2, 7, 8, and 17 through 22.

Appellants' invention pertains to a heat sink. As disclosed for a second embodiment of the invention (specification, pages 4 and 5 and Fig. 2), the heat sink includes a plate of highly thermally conductive composite "fiber material" in a matrix, with composite "fiber," without matrix, extending from the plate into a phase change material (PCM) cavity. A further understanding of the invention can be derived from a reading of exemplary claim 1, a copy of which appears in the APPENDIX to the brief (Paper No. 15).

As evidence of obviousness, the examiner has applied the documents listed below:

Hermanns et al. (Hermanns)	4,408,659	Oct. 11, 1983
Kuzay	5,123,982	Jun. 23, 1992
Lebailly et al. (Lebailly)	5,404,272	Apr. 4, 1995
		(filed Feb. 14, 1994)

The following rejections are before us for review.

Claims 1, 5, 7, 11, 17, and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Lebailly in view of Kuzay. As expressed by the examiner on pages 4 and 5 of the answer (Paper No. 16), "[i]t would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Lebailly et al. a silicon carbide porous material bonded to and externally extending from the thermally conductive surface for the purpose of constantly channeling heat from the conductive surface to the phase change fluid as disclosed in Kuzay." As to claim 1, the examiner points out that "the fibers being bonded to and externally extending from the plate (1) as disclosed by the device of the combination of Lebailly et al. and Kuzay is read as a 'matrix'."

Claims 2, 6, 8, 12, 18, and 20 through 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Lebailly in view of Kuzay, as applied above, further in view of Hermanns. The examiner is of the further opinion (answer, page 5) that it would have been obvious "to employ in Lebailly et al. as modified, the phase change material being a wax for the purpose of uniformly transferring heat as disclosed in Hermanns et al."

The full text of the examiner's rejections and response to the argument presented by appellants appears in the answer (Paper No. 16), while the complete statement of appellants' argument can be found in the main and reply briefs (Paper Nos. 15 and 19).

#### OPINION

In reaching our conclusion on the obviousness issues raised in this appeal, this panel of the board has carefully considered appellants' specification and claims, the applied patents,<sup>2</sup> and the respective viewpoints of appellants and the examiner. As a consequence of our review, we make the determinations which follow.

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<sup>2</sup> The carrier of Lebailly (Fig. 2) includes metal plates 1 and 2 (laminated copper-invar-copper), solid or perforated, undulating (sinusoidal form) metal sheet 4 brazed on the inner face of the plates, and braided copper metallic cords 5 (or other porous metallic material such as woven material, fiber flock, or metallic foam) inserted into the passages formed by the sinusoidal wave of the metal sheet and the plates. The cooled optic of Kuzay (Fig. 1) includes a silicon carbide optics body 10 with a porous material 12 bonded or fused at interfaces 14 to the optics body. The porous material 12 can be sponge or foam materials, meshed or pressed wire, or sintered woven cloth. Conventional two phase cooling is disclosed. The Hermanns patent discloses paraffins for use as a heat storage or heat retaining mass.

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We reverse each of the examiner's respective rejections under 35 U.S.C. § 103 for the procedural reason set forth below.

As explained in the "REMAND TO THE EXAMINER" portion of this opinion, infra, independent claim 1 includes a recitation which is indefinite as to a matter of significance relative to appellants' invention such that we are unable to fairly ascertain the metes and bounds of the claimed subject matter.

In cases, such as the present one, where claimed subject matter is indefinite, an evaluation thereof relative to prior art is inappropriate. See In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970) and In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962).

Therefore, under the present circumstances, we reverse the examiner's art rejections under 35 U.S.C. § 103, not based upon the merits thereof, but for the procedural reason specified above.

#### REMAND TO THE EXAMINER

We remand this application to the examiner to review the following matters:

consider the indefiniteness and inaccuracy (35 U.S.C. § 112, second paragraph) and lack of descriptive basis in the original disclosure (35 U.S.C. § 112, first paragraph) of the recitation in claim 1 of "fibers disposed to provide a matrix," in light of the underlying disclosure, e.g., "graphite fibers in a matrix of preferably an epoxy" (specification, page 4);

consider the indefiniteness (35 U.S.C. § 112, second paragraph) of the recitations in claim 2 of "said more dense phase," "said less dense phase," and "the liquid phase" in view of the lack of antecedent basis therefor in parent claim 1;

consider the patentability of the claims on appeal based upon the combined teachings of the acknowledged prior art heat sink (appellants' specification, pages 1 and 2) wherein "fin stock is vacuum brazed or dip brazed to a thermally conductive plate," the teaching by Kuzay of a porous material 12 (meshed or pressed wire or sintered woven cloth) fused at interfaces with body 14,<sup>3</sup> and other known prior art; and

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<sup>3</sup> Porous material (meshed or pressed wire or sintered woven cloth; cloth being broadly defined as pliable material of woven or knitted fibers) in the cavity of body 10 of Kuzay, with the material fused at the interfaces 14 with the body (mixed with material of body 10 to effect a matrix; a matrix being broadly  
(continued...)

consider the patentability of the claims on appeal based upon the overall teaching of Kuzay (conventional two phase cooling disclosed) alone and in combination with other known prior art.

In summary, this panel of the board has, for the procedural reason set forth above:

reversed the rejection of claims 1, 5, 7, 11, 17, and 19 under 35 U.S.C. § 103 as being unpatentable over Lebailly in view of Kuzay; and

reversed the rejection of claims 2, 6, 8, 12, 18, and 20 through 24 under 35 U.S.C. § 103 as being unpatentable over Lebailly in view of Kuzay, as applied above, further in view of Hermanns.

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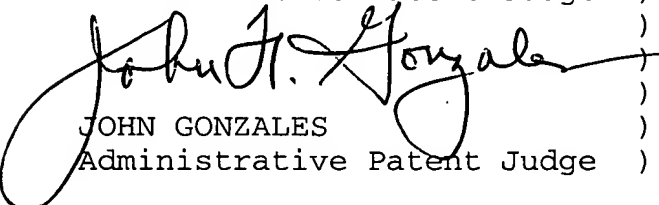
<sup>3</sup>(...continued)  
defined as something within which something else originates), may be fairly viewed as responsive to the broadly claimed porous material in a cavity with the surface region composed of "fibers disposed to provide a matrix" (claim 1), and with a plurality of the fibers extending externally of the matrix into the cavity.

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Additionally, we have remanded the application to the  
examiner for consideration of the matters specified, supra.

The decision of the examiner is reversed.

REVERSED AND REMANDED

  
IAN A. CALVERT )  
Administrative Patent Judge )  
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)  
  
IRWIN CHARLES COHEN )  
Administrative Patent Judge )  
)  
  
JOHN GONZALES )  
Administrative Patent Judge )

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